No. 717,741. PATENTED JAN. 6, 1903.

C. GABRIELSON.

TYPE WRITING MACHINE.

APPLICATION FILED AUG. 8, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

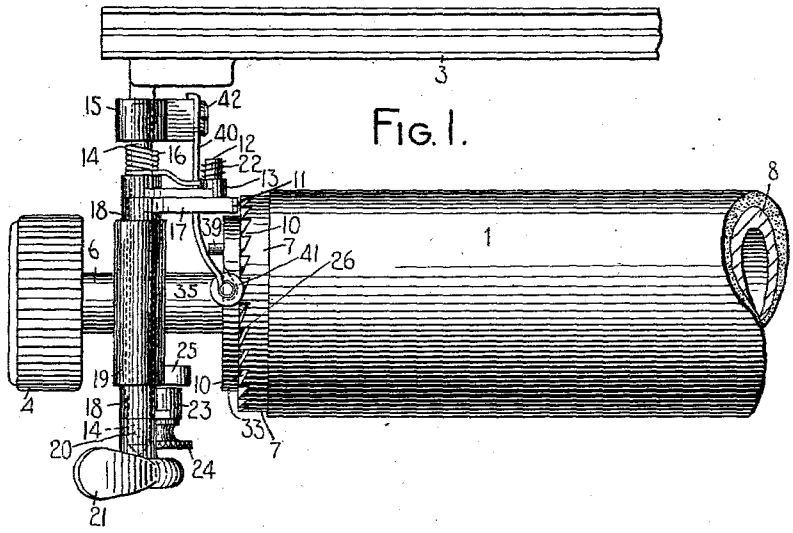

FIG. 1.

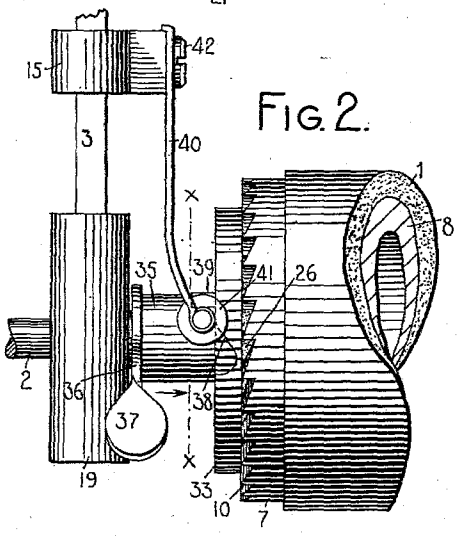

FIG. 2.

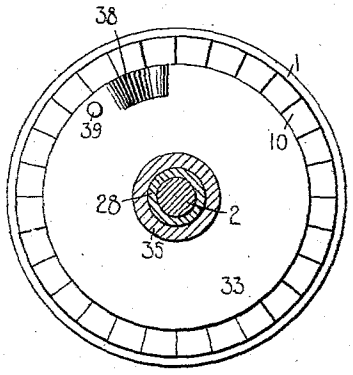

FIG. 3.

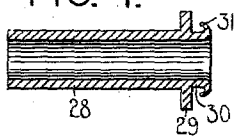

FIG. 4.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 5.

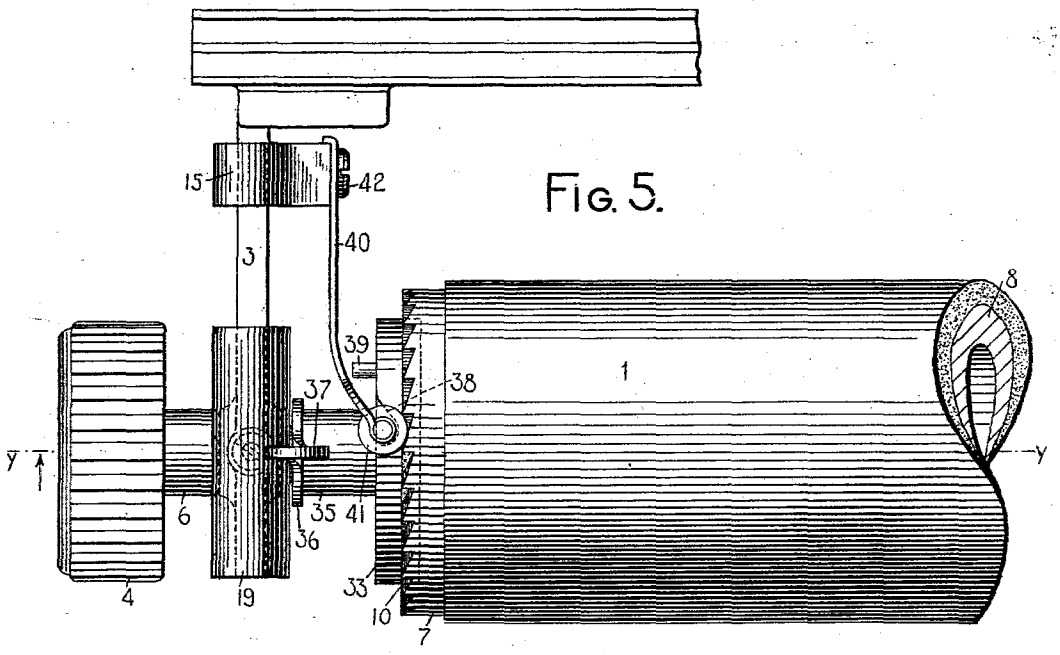
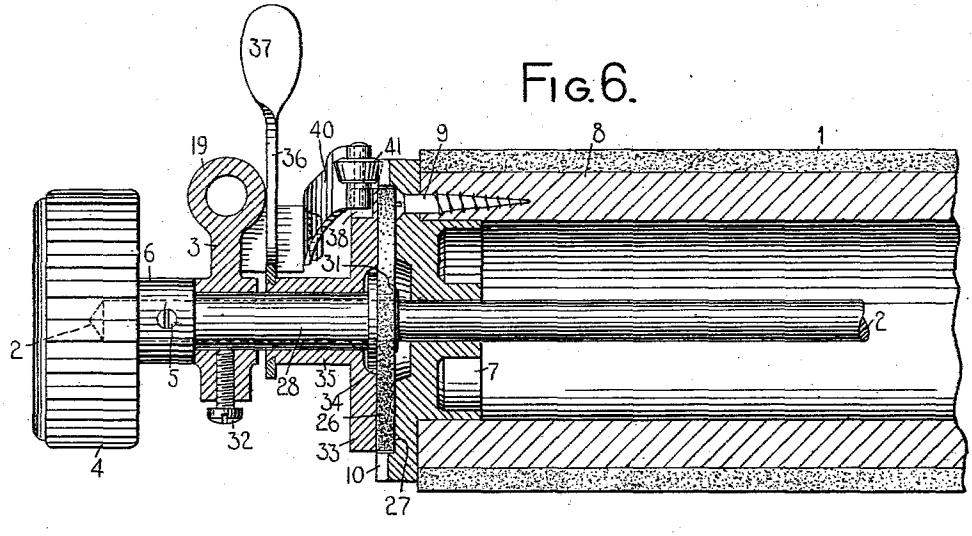


Fig. 6.



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UNITED STATES PATENT OFFICE.

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TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 717,741, dated January 6, 1903.

Application filed August 8, 1902. Serial No. 118,876. (No model.)

To all whom it may concern:

Be it known that I, CARL GABRIELSON, a citizen of the United States, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to mechanism for affording fractional line-spacing of the platen; and the object of the invention is to provide simple, cheap, and efficient mechanism of the character specified and wherein there is little liability of the parts becoming deranged or broken.

A further object of my invention is to provide simple and efficient mechanism of the character specified which can be applied to existing forms of type-writing machines with little or no modification of the structural features of said machines.

To the above and other ends, which will hereinafter appear, my invention consists in the novel features of construction, arrangements of parts, and combinations of elements, to be hereinafter described and claimed.

In the accompanying drawings, wherein like reference characters designate corresponding parts in the various views, Figure 1 is a fragmentary plan view of sufficient number of parts of one form of type-writing machines to illustrate my invention, the view illustrating the left-hand end of the platen and platen-frame with the features of my invention applied thereto. Fig. 2 is an enlarged like view of the same with parts omitted. Fig. 3 is a detail end view which corresponds to a section taken on the line $x\,x$ of Fig. 2 and looking in the direction of the arrow at said line. Fig. 4 is a detail longitudinal sectional view of the sleeve for holding the friction-disk in place. Fig. 5 is an enlarged detail plan view which corresponds to Fig. 2, except that the detent is shown disengaged from its coöperating line-spacing ratchet-wheel. Fig. 6 is a longitudinal sectional view of the parts represented in Fig. 5, the section being taken on the line $y\,y$ of Fig. 5 and looking in the direction of the arrow at said line.

The platen 1 is secured in any suitable manner to a platen-shaft 2, which extends through openings in the ends of the platen-frame 3 and turns in suitable bearings, and to each end of the platen-shaft is secured a hand-wheel 4. The hand-wheel at the left is secured to the shaft by means of a screw 5, which is received in a tapped opening in the collar 6, that extends inwardly from the hand-wheel, and the inner end of the screw bears upon the platen-shaft, thus connecting the hand-wheel thereto to effect a rotation of the platen by the hand-wheel when desired. At the left-hand end of the platen is provided a platen-head 7, which is secured to the core 8 of the platen by headed screws 9, that extend through openings in the platen-head and take into the core. The platen-head has a circular series of ratchet-teeth 10, which project from the outer side or face of the platen-head and constitute a line-spacing ratchet-wheel. Coöperating with this line-spacing ratchet-wheel is a line-feed pawl 11, that has a pivot loosely seated in an opening in a crank-arm 13, rigidly connected to a rock-shaft 14, that turns in a bearing 15 on the platen-frame. One end of a coiled spring 16 is connected to the rock-shaft, whereas the opposite end of said spring bears beneath the pivot of the crank-arm 13, thus tending normally to raise the arm and cause the pawl pivoted thereto to contact with an adjustable abutment or arm 17, that is connected to a sleeve 18, adapted to turn in a bearing 19 on the platen-frame. The shaft 14, hereinbefore referred to, extends forwardly through the sleeve 18, which constitutes an additional bearing therefor, and the shaft is rigidly connected at its outer end by a pin 20 to a finger-piece 21, by means of which the rock-shaft may be rocked to effect a line-space movement of the platen. A spring 22 is coiled about the pivot 12, which is fixed to the feed-pawl, and the spring is connected at one end to said pivot and at its opposite end to the crank-arm 13, so that the pawl when released from the abutment 17 is forced into engagement with the teeth of the ratchet-wheel. The sleeve 18 has a depending arm 23, that receives a locking-pin provided with

a head 24. This locking-pin is adapted to take into any one of a series of segmentally-arranged openings in a depending segment 25, secured to the bearing 19. In this manner the abutment 17 may be adjusted to any one of several positions to effect a line-spacing movement of the platen for one, two, or three teeth of the ratchet-wheel, as may be desired, at each line-spacing operation. An annular space is formed within the circular series of ratchet-teeth, in which a friction disk or shoe 26 may be contained. This friction-disk is preferably made of resilient material—such as leather, rubber, or the like—and is adapted to bear upon the smooth face 27 of the platen-head when pressure is exerted on the disk in a direction longitudinally or endwise of the platen and to constitute an efficient friction-brake therefor that prevents it from being accidentally displaced or rotated, but permits the platen to be turned to the desired extent by either of the hand-wheels. The friction-disk 26 is secured centrally thereof to a sleeve 28 by any suitable means. In the present instance the sleeve is provided with a flange 29, against which the outer face of the friction-disk is adapted to bear, whereas the central perforation in the disk is received on the neck 30 of the sleeve, and the disk is maintained in place and prevented from rotating on the sleeve by the turned-in end 31 thereof, which is embedded in the disk, as represented in Fig. 6, though the body portion of the disk is capable of being moved or deflected into contact with the platen-head, as will hereinafter appear. The sleeve 28 surrounds the platen-shaft 2 and extends through an opening in one end of the platen-frame 3 and is secured to the platen-frame by a set-screw 32, that is received in a tapped opening in the platen-frame and bears at its inner end against the sleeve. The platen-shaft passes freely through the sleeve, so that the hand-wheel and platen may rotate independently thereof. A plate or disk 33 is mounted on the sleeve 28 and is adapted to bear on the outer face of the friction-disk. This plate is recessed at 34 in order that the flange 29 on the sleeve may be accommodated therein and the inner face of the plate be permitted to bear on the friction-disk. A collar or sleeve 35 is connected to and extends outwardly from the plate and with the plate turns freely on the sleeve 28. The outer end of this sleeve or collar has riveted thereto an upwardly-extending arm 36, that is provided with a finger-piece 37. The outer face of the plate 33 has a recess therein that forms a cam 38, and to the rear of this cam is situated a pin 39, that projects outwardly from the face of the plate. A spring-detent 40, that carries a detent-roller 41, is secured by a screw 42 to the bearing 15 on the platen-frame, and the pressure of the spring-detent is exerted longitudinally of the platen, so as to normally maintain the detent-roller in contact with the teeth of the line-spacing ratchet-wheel. The disposition of the cam 38 on the plate 33 is such that when the plate is turned to the position represented in Figs. 1, 5, and 6 the terminal of the spring of the detent will be received within the depression, thus enabling the pressure of the spring of the detent to be exerted upon the line-spacing ratchet-wheel through the roller 41. When, however, the finger-piece 37 is turned from the position shown in Fig. 1 to that represented in Fig. 2, it causes the detent to be thrown and maintained out of coöperation with the teeth of the line-spacing ratchet-wheel by the movement of the cam 38. The turning movement of the plate and its attached finger-piece is limited by the pin 39, that is adapted to contact with the spring of the detent, as represented in Fig. 2, and in this disposition of the parts the end of the spring will rest on the outer face of the plate 33 and maintain the parts in the position shown until the plate is turned back to the position represented in Fig. 1. The movement of the plate from the position represented in Fig. 1 to that shown in Fig. 2 causes the pressure of the spring-detent to be exerted upon the plate 33, which tends to move it in a direction longitudinally of the platen, thus applying the pressure of the spring-detent to the friction-disk, and the resiliency or flexibility of the latter enables it to be forced into contact with the platen-head to exert a braking action on the platen, so that the movement of the detent out of engagement with the teeth of the line-spacing ratchet-wheel automatically causes the spring-pressure of the detent to be exerted upon the platen to prevent the free or accidental rotation thereof. At this time the platen may be rotated to any desired extent to bring any desired portion thereof to the printing-line. Thus, for instance, in fractional line-spacing, where it is desired to bring a portion of the platen or the paper thereon to the printing-line, which cannot be effected with the ordinary line-spacing mechanism, it is merely necessary to move the finger-piece 37 toward the front of the machine, when the spring-detent will be thrown out of coöperation with the line-spacing ratchet-wheel and the pressure thereof will be exerted upon the friction-disk. The platen may then be rotated to the desired extent by either of the hand-wheels 4, and the platen will be maintained by the friction-disk in the position to which it has been moved.

It should be understood that for the purpose of my invention it is immaterial what character or construction of line-spacing mechanism is used in connection with the line-spacing ratchet-wheel, that shown being similar to the line-spacing mechanism illustrated in the Patent No. 647,055, granted April 10, 1900, to C. D. Wallace.

From certain aspects of my invention the part which coöperates with the friction-disk to afford a braking action of the platen may be regarded as a platen-head, and from other

aspects it may be regarded as a part of the line-spacing ratchet-wheel, which may be connected in any suitable manner to rotate with the platen.

It will be observed that the pressure of the spring-detent on the ratchet-teeth is endwise of the platen, and that the braking action on the platen is by a pressure exerted longitudinally thereof. It will likewise be seen that the plate 33 is adapted to turn on the axis of the platen and to move longitudinally thereof and that the turning movement of the plate is effective to disengage the spring-detent from the line-spacing ratchet-wheel, whereas the slight movement of the plate longitudinally of the platen is effective to exert a braking pressure on the platen; that the device forming the subject-matter of my invention occupies but little space, is simple in construction and efficient in operation, and in application requires few, if any, structural changes in existing forms of type-writing machines.

While I have shown one form of my invention, various modifications may be made without departing from the spirit thereof.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination of a platen, a detent therefor, and means for automatically placing an endwise pressure on the platen when the detent is released.

2. In a type-writing machine, the combination of a platen, a spring-pressed detent therefor, and means for applying pressure endwise of the platen when the detent is moved against its spring-pressure to release the platen.

3. In a type-writing machine, the combination of a platen, a detent therefor, a brake which is moved longitudinally of the platen, and means for applying a braking-pressure to the brake when the detent is thrown out of coöperation with the platen.

4. In a type-writing machine, the combination of a platen, a ratchet-wheel therefor, a spring-pressed detent that coöperates with said ratchet-wheel, a brake which applies its pressure endwise of the platen, and means for applying the spring-pressure of the detent to the brake when the detent is thrown out of engagement with the ratchet-wheel.

5. In a type-writing machine, the combination of a platen, a ratchet-wheel therefor, a spring-pressed detent that normally bears against said ratchet-wheel, and hand-operated means which removes the pressure of the spring-detent from the teeth of the ratchet-wheel and applies it as a brake to the end of the platen.

6. In a type-writing machine, the combination of a platen, a ratchet-wheel connected to rotate therewith, the teeth on the ratchet-wheel being on a side thereof, a spring-detent that coöperates with the teeth of the ratchet-wheel and exerts its pressure longitudinally of the platen, and means for removing the pressure of the detent from the teeth of the ratchet-wheel and exerting it on the platen to afford a fractional spacing thereof.

7. In a type-writing machine, the combination of a platen, a ratchet-wheel, a detent coöperating with the teeth of the ratchet-wheel, a friction-disk that is adapted to coöperate with a platen-head, and means for removing the pressure of the detent from the ratchet-wheel and exerting pressure on said friction-disk.

8. In a type-writing machine, the combination of a platen, a ratchet-wheel, a spring-detent that normally bears on the teeth of the ratchet-wheel, a friction-disk that is adapted to coöperate with a platen-head, and means for moving the detent against its spring-pressure and out of contact with the teeth of the ratchet-wheel and exerting said spring-pressure on the friction-disk.

9. In a type-writing machine, the combination of a revolving platen, a friction-disk that is adapted to be maintained fixed against rotation during the rotation of the platen, and means for moving said friction-disk into frictional contact with a platen-head.

10. In a type-writing machine, the combination of a revolving platen, a ratchet-wheel, a detent for said ratchet-wheel, a friction-disk that is fixed against rotation, and means for moving said detent out of coöperation with the teeth of the ratchet-wheel and for moving said friction-disk into frictional contact with a platen-head.

11. In a type-writing machine, the combination of a revolving platen, a line-spacing ratchet-wheel that is arranged to rotate with the platen, a detent that coöperates with the teeth of said ratchet-wheel, and means for throwing the detent out of coöperation with the teeth of the ratchet-wheel and applying a pressure endwise of the platen to another portion of said ratchet-wheel.

12. In a type-writing machine, the combination of a revolving platen, a line-spacing ratchet-wheel that is arranged to rotate with the platen, a spring-detent that normally bears upon the teeth of said ratchet-wheel, and means for moving the detent against its spring-pressure and out of coöperation with the teeth of the ratchet-wheel and for applying the pressure of the detent endwise of the platen to another portion of said ratchet-wheel.

13. In a type-writing machine, the combination of a revolving platen, a line-spacing ratchet-wheel that is arranged to rotate with the platen and has the teeth situated on one of its sides, a spring-detent that exerts its pressure longitudinally of the platen, and means for throwing the detent out of coöperation with the teeth of the ratchet-wheel and exerting the spring-pressure to retard the free rotation of the platen for fractional line-spacing.

14. In a type-writing machine, the combi-

nation of a revolving platen, a platen-head having line-spacing ratchet-teeth thereon, a spring-detent that bears upon said ratchet-teeth, a friction-disk that is adapted to bear upon the platen-head within said teeth, and means for moving the detent out of contact with the ratchet-teeth and for applying pressure to the friction-disk.

15. In a type-writing machine, the combination of a revolving platen, a line-spacing ratchet-wheel that is arranged to rotate with the platen, a spring-detent that normally bears upon the teeth of said ratchet-wheel, a friction-disk that is adapted to bear endwise of the platen and on a part that rotates therewith, and hand-operated means for throwing the detent out of contact with the teeth of the ratchet-wheel and for simultaneously applying pressure to the friction-disk.

16. In a type-writing machine, the combination of a revolving platen, a line-spacing ratchet-wheel that is arranged to rotate with the platen, a spring-detent that normally bears upon the teeth of said ratchet-wheel a friction-disk that is adapted to bear endwise of the platen on a part that rotates therewith, and hand-operated means for moving the detent against its spring-pressure to throw the detent out of contact with the teeth of the ratchet-wheel and for simultaneously applying the spring-pressure of the detent to the friction-disk to afford a fractional line-spacing of the platen.

17. In a type-writing machine, the combination of a revolving platen, a line-spacing ratchet-wheel arranged to rotate therewith, a spring-detent that coöperates with the teeth of the ratchet-wheel, a friction-shoe that is adapted to act as a brake to retard the free rotation of the platen, and a hand-operated actuating part that moves longitudinally of the platen and applies pressure to the brake-shoe when the detent is moved out of coöperation with the teeth of the ratchet-wheel.

18. In a type-writing machine, the combination of a revolving platen, a line-spacing ratchet-wheel arranged to rotate therewith, a spring-detent that coöperates with the teeth of the ratchet-wheel, a friction-shoe that is fixed against rotation and is adapted to act as a brake to retard the free rotation of the platen, and a hand-operated actuating part that oscillates transversely and moves longitudinally of the platen, and applies pressure to the brake-shoe when moved to throw the detent out of coöperation with the teeth of the ratchet-wheel.

19. In a type-writing machine, the combination of a revolving platen, a line-spacing ratchet-wheel arranged to rotate therewith, a spring-detent that coöperates with the teeth of the ratchet-wheel, a friction-shoe that is adapted to act as a brake to retard the free rotation of the platen, and a hand-operated actuating part that has a cam which lifts the detent off the teeth of the ratchet-wheel and moves longitudinally of the platen to apply pressure to the brake-shoe when the detent is moved out of coöperation with the teeth of the ratchet-wheel.

20. In a type-writing machine, the combination of a platen, a platen-head having a circular series of line-spacing ratchet-teeth thereon, a friction-disk contained within said circular series of teeth, a spring-detent which normally bears upon the ratchet-teeth, and a hand-actuated cam that is movable to move the detent against its spring-pressure and out of contact with the ratchet-teeth and to apply the pressure of the spring-detent to the friction-disk for fractional line-spacing.

21. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a detent therefor, and a detent-releasing device which is adapted to turn and to move longitudinally of the platen and is effective when turned to remove the detent from engagement with the ratchet-teeth and to move longitudinally of the platen to apply pressure thereto for fractional line-spacing.

22. In a type-writing machine, the combination of a revolving platen, a ratchet-wheel arranged to revolve with the platen, a spring-detent normally bearing on the teeth of the ratchet-wheel and mounted on a part that is fixed relatively to the rotation of the platen, a cam that is mounted to turn on the axis of the platen, a finger-piece for moving said cam, and a friction-shoe which is forced into contact with an end of the platen when the cam is moved to release the detent.

23. In a type-writing machine, the combination of a platen, a platen-shaft, a line-spacing ratchet-wheel, a coöperating detent, a sleeve that surrounds the platen-shaft, and which is fixed to the platen-frame, a friction-disk that is carried by said sleeve and adapted to bear against a part that revolves with the platen, and means for applying pressure to the friction-disk when the detent is moved out of engagement with the teeth of the ratchet-wheel.

24. In a type-writing machine, the combination of a platen, a platen-shaft, a line-spacing ratchet-wheel, a coöperating spring-detent, a sleeve that surrounds the platen-shaft and which is fixed to the platen-frame, a friction-disk that is carried by said sleeve and adapted to bear against a part that revolves with the platen, and hand-operated means for automatically applying the spring-pressure of the detent to the friction-disk when the detent is moved against the spring-pressure thereof and out of engagement with the teeth of the ratchet-wheel.

25. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a coöperating spring-detent therefor, a hand-operated detent-releasing device that turns on the axis of the platen and moves longitudinally thereof, and means which afford a disengagement of the detent from the

ratchet-wheel by turning the releasing device and which affords a pressure on the platen by a movement of said releasing device in the direction of the length of the platen.

26. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a spring-detent for said line-spacing ratchet-wheel, and means for automatically applying the spring-pressure of the detent to a smooth side of the ratchet-wheel when the detent is moved out of contact with the teeth of the ratchet-wheel.

27. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a spring-detent, a friction-disk, and means for applying the spring-pressure of the detent to the friction-disk when the detent is moved out of contact with the teeth of the ratchet-wheel, to afford fractional line-spacing of the platen.

28. In a type-writing machine, the combination of a platen, a platen-shaft, a line-spacing ratchet-wheel therefor, a spring-detent that normally bears upon the teeth of the ratchet-wheel, a sleeve that surrounds the platen-shaft and is secured against rotation with the platen, a friction-disk that is secured to said sleeve, a plate that turns on said sleeve, a finger-piece for turning said plate, a cam on the plate that is adapted to force the detent out of engagement with the teeth of the ratchet-wheel and to apply pressure to the friction-disk and through the disk to the platen, and thereby afford a fractional line-spacing of the platen.

29. In a type-writing machine, the combination of a platen, a platen-shaft, a line-spacing ratchet-wheel therefor, a spring-detent that normally bears upon the teeth of the ratchet-wheel, a sleeve that surrounds the platen-shaft and is secured against rotation with the platen, a friction-disk that is secured to said sleeve, a plate that turns and moves longitudinally on said sleeve, a finger-piece for turning said plate, a cam on the plate that is adapted to force the detent out of engagement with the teeth of the ratchet-wheel and to simultaneously effect a longitudinal movement of the plate on the sleeve to apply the pressure of the spring-detent to the friction-disk, and through the disk to the platen, and thereby afford a fractional line-spacing of the platen.

30. In a type-writing machine, the combination of a platen, a platen-shaft arranged to rotate with the platen, a hand-wheel on the platen-shaft, a line-spacing ratchet-wheel arranged to rotate with the platen, a spring-detent for the ratchet-wheel, a sleeve that surrounds the platen-shaft but is fixed with relation to the rotation thereof, a friction-disk secured to said sleeve and adapted to bear on a platen-head, a plate that is loosely mounted on the sleeve and is adapted to turn and to move longitudinally thereon, a finger-piece connected to said plate, and a cam on the plate for moving the detent against the tension of its spring to remove the detent from engagement with the teeth of the ratchet-wheel and to apply pressure of the spring-detent to the friction-disk.

31. In a type-writing machine, the combination of a platen, a platen-shaft arranged to rotate with the platen, a hand-wheel on the platen-shaft, a line-spacing ratchet-wheel arranged to rotate with the platen, a spring-detent for the ratchet-wheel and the pressure of which is exerted in the direction of the length of the platen, a sleeve that surrounds the platen-shaft but is fixed with relation to the rotation thereof, a friction-disk secured to said sleeve and adapted to bear on a platen-head, a plate that is loosely mounted on the sleeve and is adapted to turn and to move longitudinally thereon, a finger-piece connected to said plate and by which it is moved, a pin on the plate to limit its turning movement in one direction, and a cam on the plate for moving the detent against the tension of its spring to remove the detent from engagement with the teeth of the ratchet-wheel and to afford a longitudinal movement of the plate on the sleeve for applying the pressure of the spring-detent to the friction-disk.

Signed at Springfield, in the county of Hampden and State of Massachusetts, this 6th day of August, A. D. 1902.

CARL GABRIELSON.

Witnesses:
J. G. DUNNING,
C. S. HAWKINS.